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NEXRAD - INITIAL OPERATIONAL TEST AND EVALUATION

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Over the past several years I have had the opportunity to participate in the testing of the NEXRAD prototype during the Initial Operational Test and Evaluation (IOT&E) 1 and 1b.

Late in 1985 two test teams were formed to participate in the IOT&E. One team was sent to Raytheon Corporation near Boston while the other went to Sperry (now UNISYS) Corporation in Bloomfield, Connecticut. Each operational team consisted of three NWS meteorologists, three Air Weather Service (AWS) forecasters, one AWS observer, and a FAA representative.

After three weeks of contractor sponsored training in early April 1986, we were ready to go. The Air Force Operational Test and Evaluation Center (AFOTEC) had responsibility for the test. AFOTEC brought together a wide variety of specialists in operational testing to supervise and analyze the actual test.

The test setting was designed to resemble a WSFO or Base Weather Office as much as possible. We had teletype and facsimile units (you really miss AFOS when you don't have it!) providing real time weather data. The test team had exclusive use of the unit for eight hours each day and were on 24-hour availability (by beeper) for call back in case of thunderstorm development. During the remaining hours the contractor had use of the system.

Each shift started with a system status briefing and a discussion of the problems discovered the previous day. During the actual radar shift the operator had to issue routine products such as FT's, TWEB's, local forecasts and nowcasts. Statements and warnings were issued as needed. These products were not distributed out of the test location. At the end of each shift the operator would fill out a variety of questionnaires describing the usefulness of NEXRAD in specific operations and preparation of products.

The wide variety of questionnaires were used to rate the operational effectiveness of the NEXRAD unit. Some of the tested objectives included: accurate warnings, timely warnings, process high priority requests, watches/advisories, short range forecasts, shutdowns/restarts, automated alert feature, surface weather observations, weather briefings, automatic scan-mode deselection, dial-up feature, determination of weather phenomena, workload/skill levels, electromagnetic compatibility, safety, training, reliability, and maintainability.

The issuance of watch items (WIT) was a very important function of the test team. Only test team members could originate a WIT. WIT's were system problems noticed by the operator and could range from quite minor to serious. WIT's could also be based on a proposed enhancement to the system. After a rigorous screening and documentation process, WIT's were sent to the NEXRAD Joint System Program Office (JSPO).

WIT's allowed input to both the JSPO and the contractor on what the NWS meteorologist likes and dislikes about the system.

IOT&E1b was similar to IOT&E1 except that additional developmental progress was made to the system that allowed for a more complete evaluation. After completion of this second test, the UNISYS was chosen as the winning contractor in December 1987.

I had the impression that WSH, AFOTEC, and the contractor were extremely interested in how the operational meteorologist perceived the system. Although many factors (such as cost) come into play, I had the feeling that a major effort was being made to accommodate the needs of the NWS forecasters. Further testing and evaluation involving NWS forecasters is scheduled the first half of 1989 during IOT&E2.